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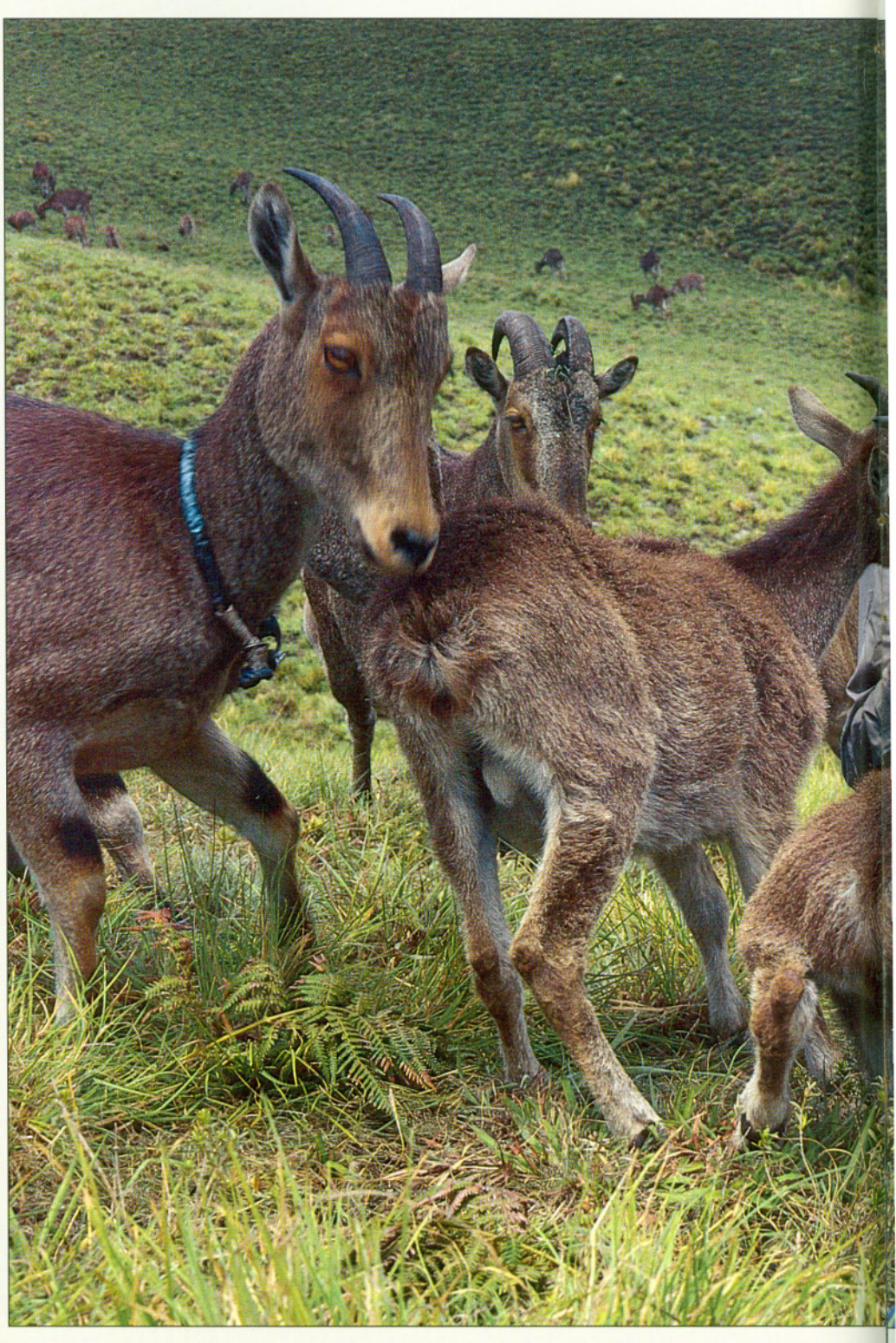
In the hills of South India, a researcher masters a novel

By Clifford G. Rice



SINCE I COULDN'T GO to the animals, I thought, maybe the animals would come to me. Amazingly enough, they did.

I must have been an odd sight as I sat on the high Indian plateau sowing a slushy concoction of salt and water. It was part of my plan, born of months of frustration, to "bribe" a herd of Nilgiri tahr—rare relatives of sheep and goats—so I could study them up close.

The bribe paid off. At first, the wary animals ventured only as near as the most distant clumps of slush. Pushed aside by the dominant animals, the others were left with a choice: Either forget the treat or brave the clumps nearest me.

To my astonishment and delight, one male tahr kid that had seen me all his life started coming up to take the closer salt, encouraging others to follow. Soon he was inches away, warily plucking salt from the grass at my feet. Hardly able to contain myself, I wanted to reach out and hug him for what he had done.

That episode brightened what at times had been a long and discouraging experience. I was in Eravikulam National Park, high in the hills of South India, conducting a two-year study of the Nilgiri tahr in the creatures' only home. After almost a year, though, I had not been able to approach the animals to observe them up close. Meanwhile, I had been blinded by monsoon mists and slowed by a mysterious illness—which, ironically, might have been just the break I needed.

Because few scientists had studied them, little was known about the Nilgiri tahr, goat-sized creatures with short, curved horns. My mission, as a graduate student at Texas A&M University and a junior fellow with the American Institute of Indian Studies, was to gather as much information as I could about the animals by watching them. I knew they were wary of people. In theory, though, one could observe them at a distance through a spotting scope as they roamed the open plateau. As I discovered, theory and practice do not always mesh, especially when the

OF THE HERD

technique for studying hoofed animals: winning their trust

MOHAN ALAMBUTH; INSETS, CLIFFORD RICE

Normally skittish Nilgiri tahr eat out of the author's hands on a hillside in India. It took a little salt and lots of patience, but eventually he coaxed the animals near enough to be studied.

theory does not account for monsoons.

From June through August, warm moist air comes sailing off the Indian Ocean and slams into the South Indian hills. The air mass has to climb 7,000 feet to clear the Eravikulam Plateau. As it rises and cools, it sheds moisture with a vengeance. During most of this time the hills are either drenched by rain (about 10 feet fall during the monsoon months) or shrouded in fog. Gale-force winds flail the grass and drag the mist writhing over the ridges.

Day after day I left my small cottage to wander in search of tahr. I found fresh droppings and sometimes caught a glimpse of a silhouette before it disappeared into the gray. Otherwise, I lurched and stumbled over the grass hummocks and staggered against the buffeting wind. The idea was simply to watch the tahr. But to watch them I first needed to see them.

The monsoon eventually would end, of course, but all indications were that the mating season for tahr was during the rainy season. Finding out anything about this important aspect of the animals' life seemed impossible, and short of that I felt my project would be a bust.

The solution, I finally determined, was to get some of the tahr used to me so I could stay close by and watch them in the mist and rain. This type of habituation has been done before, especially by primate researchers. But seldom has it been tried with ungulates, in part because hoofed animals usually live in the open and are easy enough to observe from a distance.

In September, the monsoon eased its grip. Mornings broke clear and sparkling. The landscape burst into a symphony of color, lush green hills offset by deeper green patches of forest and steel-gray rock outcrops.

Now that I could see, I quickly determined that the 550 or so tahr of Eravikulam were divided into a half-dozen loose subpopulations, each consisting of

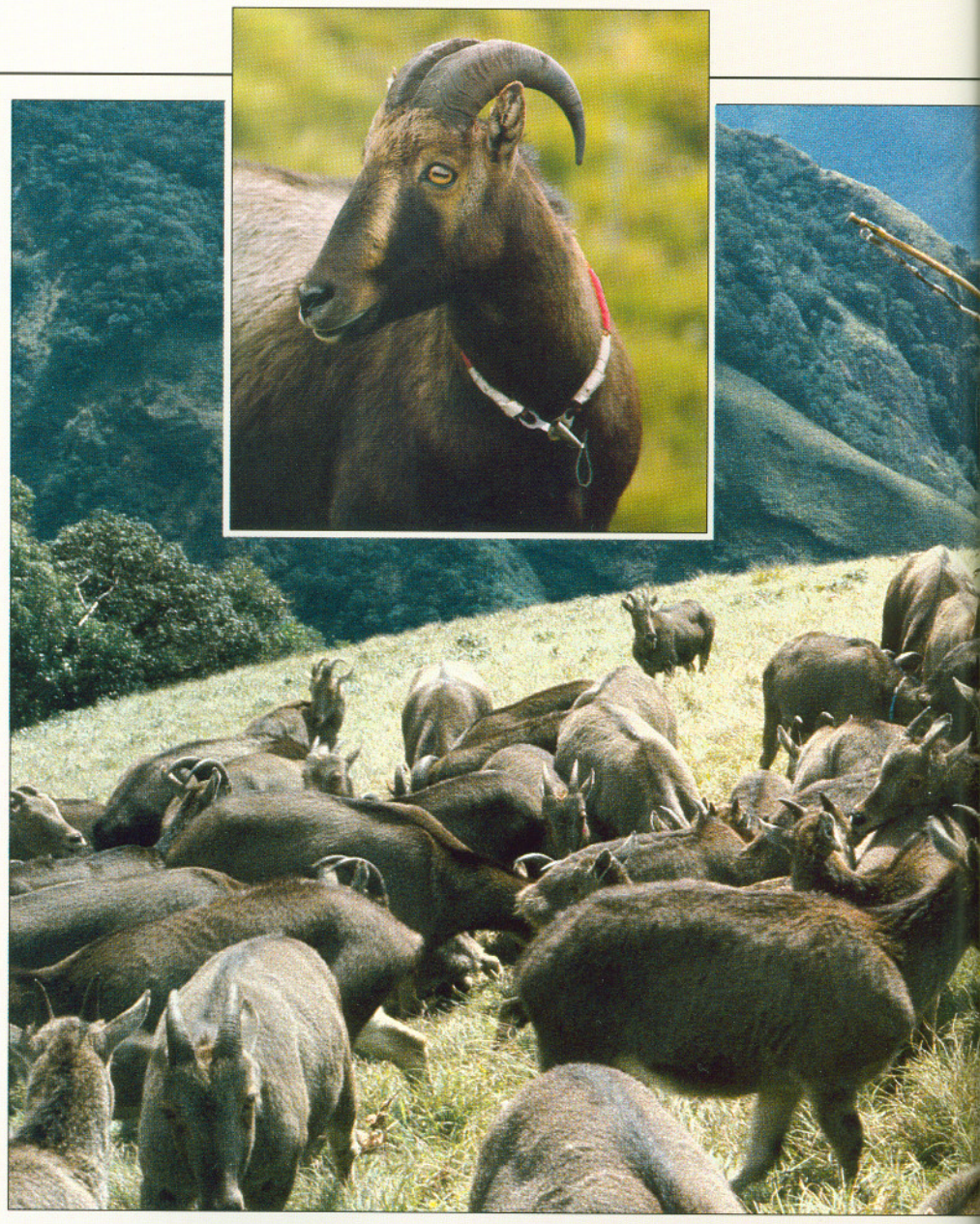
no more than 120 adult females and juveniles of both sexes. The older males moved among these groups, which stayed within a common range of about 2 square miles.

Rather than try to habituate the whole population, I decided to concentrate on one of the more accessible subgroups. Initially I considered using some sort of bait to bring the animals to an area where I could observe them. But I wanted to study their natural movements, so I chose instead to "bore them to death" from a nonthreatening distance of 300 yards. As days turned into weeks, I began to wonder which of us would lose interest first.

Any habituation effort is an act of faith, and one cannot expect immediate results. So I kept the faith, squinting cross-eyed into the spotting scope well into the new year. Newborn kids appeared, sometimes popping up from the grass at my feet to bound away.

I finally made the leap from faith to knowledge in March, when the tahr showed the first real signs of habituation. Shortly before, park officials had burned a ridge of grassland as part of an annual effort to improve grazing in the tahr's range. Attracted by the new growth, the animals moved to the area. But because of a deep ravine on one side and cliffs on the other, there was nowhere less than a mile nor more than 50 yards away from which I could watch them. I had no choice but to move closer.

As I made my way around one knoll, I tried to match my behavior with that of the animals. I walked slowly, taking frequent pauses. Occasionally I plucked and chewed on a grass stem. I kept my gaze out over the valley or back behind me, glancing only surreptitiously at the tahr, as if their presence meant nothing to me. I was overjoyed when, instead of fleeing, they just slightly increased their rate of movement and continued grazing.



Around that time, ten months into my study, I came down with a mysterious illness whose chief symptom was extreme fatigue. (A doctor later narrowed it down to tuberculosis, mononucleosis or hepatitis.) Every step was an effort. When I caught up with the tahr on my forays I usually put my pack behind my head and took a nap. Though there are more efficient ways to gather data, this passive approach seemed actually to help with habituation: What, after all, could be less threatening?

By the time I had recovered, which took several weeks, the tahr tolerated me as close as 50 yards, but even at that distance I still made them nervous. I knew that the monsoon mists would soon return, making 50 yards seem like 50 miles. Only then did I reluctantly decide on a new strategy: to give the animals an addiction, then coax them with it to come closer. Local tea estate managers provided me with the perfect attractant—a bag of gritty, lumpy salt. I put some lumps out for the tahr, and when after a week they figured out what it was, they loved it.

I then began carrying the salt around with me. The animals seemed to locate the treat by smell. So when I located a small group, I slowly worked my way upwind, sat down and gently scattered some lumps on the ground. The dry pieces just sank into the grass, so I mixed them with water to make a salty slush. The tahr were coming close now, but they remained jumpy, leaping away if I so much as moved to scratch a leech bite. Slowly the tension eased, and before long it was not unusual for me to have a crowd of 30 or 40 of the animals gathered around me. By then the monsoon had arrived in force, so these salt sessions often took place in frigid, slanting rain that left me stiff and shivering.

The older males, having left the female groups in the fall and missing most of the habituation process, returned for the surprise of their lives. As I came around the hill or emerged through the mist, they bolted in alarm, only to stop suddenly when they noticed that the others did not react the same way. It took them about a week to join the ranks of the habituated.

On his second or third day back, a burly male came for salt and lingered longer than the rest. As a ray of sunlight shone down on us, I decided to take his photograph. I rose slowly, moved away and cir-

GREG EDBLOM; INSET, CLIFFORD RICE

Tahr fishing? Wielding a bamboo pole, the author prepares to slip a colored identification collar (inset) around a female tahr's neck. Males, whose horns bear nicks from fights with other males, can be recognized without I.D. collars.

cled around below him to get a better angle. At this, he straightened up, arched his back and walked stiff-legged away from me, then stopped in a head-out posture. Suddenly it dawned on me: By moving around in a semicircle and stopping, I had emulated the tahr's dominance display. Challenged, this male was responding in kind. Not wishing things to escalate further, I casually moved away, as did he.

After a full year into my study I was able to move among the tahr, with or without salt. Their reaction to me was similar to their reaction to a dominant tahr: If I came forward, they moved out of my way. I had, in a sense, become one of the herd.

To better understand the tahr, however, I needed to know more about the individual animals. Identifying males was no problem; many had recognizable chips in their horns from clashes with other males. Females were a different story. They rarely fought, and when they did, they seldom clashed horns. I needed to mark them.

Among my supplies were some self-attaching color-coded identification collars. In theory, the animals would slip the collars around their own necks when they walked through a nooselike snare set on a trail. In their open habitat, though, tahr seldom went through restricted passages, and when they did they were leery of snare settings, probably because poachers occasionally used snares. (Tahr have been protected by law since 1972.)

So I devised another method, borrowing a trick from the fisherman. I attached a collar and noose to a bamboo pole. When the tahr came for salt, I slipped the noose over an animal's head and pulled to tighten the collar around its neck. But once an animal felt something rubbing on its skin, often times it pulled away, yanking the collar from the pole.

The solution was to lengthen the trailing end of the noose, run it down the pole and leave it coiled at my feet. Now when the tahr jumped away, I let the line run like a fish taking the bait. When the animal stopped, I made sure the clip on the collar was fastened, then broke the noose with a sharp tug, leaving the collar in place. With this technique I was able to attach more than 50 collars on females.

At last, my job could begin. Each morning I left the cottage and hiked off in search of tahr. When I found them, I wandered through the group, listing each member into my tape recorder. Then I found a good vantage point and kept close tabs on tahr society.

When the monsoon sailed in again, I was able to determine the social rank of the males. I watched the hierarchy change as they settled their differences in violent horn-bashing fights. I also charted the progress of females as they came into heat. Younger males first attempted brief courtships; then mature males began to show interest. Finally, the dominant male chased away the other suitors and mated with the female during the few hours she'd allow it.

My research had been successful, I thought, for I knew all I could hope to know about the tahr's behavior. But how well did I know them, really? After more than two years, we were in many ways still strangers. Did individual tahr have personalities? I could not say, so different are tahr society and communication from those of people. I do know this: Whatever I learned about the animals, my inability to communicate with the tahr, along with the unrelenting baptism of the monsoons, taught me the great rewards of patience.

When I returned from Eravikulam, I heard from Indian colleagues that the Nilgiri tahr remained approachable long after I had gone. Perhaps, then, in their way the animals remembered me. For my part, I will never forget my years among the tahr nor how I won their trust. ▣

Clifford G. Rice currently is a biologist for the Department of Natural Resources on the Pacific island of Saipan.